

REMARKS

This is in response to the Office Action of March 31, 2008. Applicant gratefully acknowledges the Examiner's indication, on page 5 of the Office Action, that claims 7 and 8 are allowable in substance. New claims 10-12 are added, based upon such disclosure as that in the 2nd and 3rd full paragraphs on page 3 of the specification and in the Examples. No new matter is introduced by this Amendment. Claims 1, 2, 4, 5, and 7 through 12 are now pending in the application.

Prior art rejections

Claims 1, 2, 4, and 9 were rejected under 35 U.S.C. § 102(b) as being anticipated by US 4,059,561 ("Arai"). Office Action, pages 3-4. Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Arai. Office Action, page 4. The rejections are respectfully traversed.

The polymerizable composition in the present invention is a monomer composition comprising a particular type of cycloolefin monomer and a flame retardant. Specifically, in the invention of claims 1, 2, 4, 5, and 7-10, a monomer having a condensed ring made of an aliphatic ring having one or more carbon-carbon double bonds and an aromatic ring is used as the cycloolefin monomer. In accordance with that embodiment of the present invention, this particular cycloolefin monomer is contained in an amount of 10 weight-% or more with respect to all of the cycloolefin monomers in the polymerizable composition. The polymerizable composition provided by the present invention can readily be used in bulk polymerization reactions.

Examples of specific methods for obtaining a resin-molded product in accordance with the present invention include methods of polymerizing and molding the polymerizable composition by using a supporting body such as (a) a method of coating the polymerizable composition onto a supporting body such as a film and conducting bulk polymerization by heating to a predetermined temperature, (b) a method of impregnating a supporting body such as a *fiber reinforcement* with the polymerizable composition and conducting bulk polymerization by heating to a predetermined temperature; and a method of polymerizing and molding the

polymerizable composition by using a metal mold such as (c) a method of injecting the polymerizable composition into a cavity of a forming mold and conducting bulk polymerization by heating to a predetermined temperature.

In contrast, Arai discloses a Sample No. 140, wherein a ring-opened copolymer (17) of 5-cyano-bicyclo[2.2.1]-heptane-2 and 1,4-dihydro-1,4-methanonaphthalene is combined with flame retardant (A). In Arai, the ring-opened copolymer (17) is obtained by ring-open polymerizing the above two monomers in the presence of 7.0 liters of 1,2-dichloroethane and then by precipitating the polymer by pouring methanol into the reaction mixture. See columns 45-46 "POLYMER (17)" and column 32 "EXAMPLE 1."

Thus, the flame retardant composition disclosed in Arai is a polymer composition which comprises a polymer wherein the monomers are already polymerized. Accordingly, it is manifest that the polymerizable composition in the present invention and the flame retardant composition disclosed in Arai differ significantly from one another.

Furthermore, unlike the flame retardant composition disclosed in Arai, since the polymerizable composition in the present invention is a monomer composition, the following beneficial effects (1) through (4) are provided by Applicant's invention:

(1) Since the polymerizable composition can be polymerized by bulk polymerization, no solvent is necessary. Therefore, the conventional step of removing solvent is not necessary in Applicant's invention, which results in excellent manufacturing productivity. Also, problems associated with residual solvent do not occur in Applicant's invention.

(2) When used for fiber reinforcement, since Applicant's composition is significantly lower in viscosity as compared to conventional resin solutions (polymer compositions), impregnation can be carried out rapidly. Moreover, because of the high permeability of Applicant's composition, fiber reinforced resin molded products which are higher in resin concentration are provided by Applicant's invention.

(3) When used for fiber reinforcement, Applicant's invention provides a polymer with fiber reinforcement elements having a uniform dielectric constant throughout.

(4) Unlike Arai, after obtaining the polymer in the present invention, there is no need to combine it with a flame retardant. Therefore, a molded product having stable characteristics

is obtained, because the polymer is not affected by shear and/or thermal treatments applied during a process of combining the polymer with a flame retardant.

As discussed above, Arai merely discloses a polymer composition comprising a polymer. Arai neither teaches nor suggests a composition which comprises a particular cycloolefin as prescribed by Applicant's claims 1, 2, 4, 5, and 7-10 and a flame retardant. The polymerizable composition of the present invention is defined as follows: "A polymerizable composition comprising: a cycloolefin monomer, a flame retardant and a metathesis polymerization catalyst, wherein a monomer having a condensed ring made of an aliphatic ring having one or more carbon-carbon double bonds and an aromatic ring is used as the cycloolefin monomer and is contained in an amount of 10 weight-% or more with respect to all of the cycloolefin monomers in the polymerizable composition".

Furthermore, the remarkable effects of the present invention described above are made available to the public for the first time by Applicant's invention.

Accordingly, the invention described in Applicant's rejected independent claim 1 is manifestly not anticipated by the Arai disclosure. Moreover, that invention is not rendered obvious or otherwise placed into the possession of the public by Arai's disclosure. It goes without saying that rejected dependent claims 2, 4, 5, and 9 which depend therefrom recite inventions that are neither taught nor suggested by the Arai disclosure. Withdrawal of the rejections of record of claims 1, 2, 4, 5, and 9 is accordingly earnestly solicited. New claim 10 distinguishes over the Arai disclosure for similar reasons.

New claims 11 and 12 require, among other things, preparing a monomer solution comprising a cycloolefin monomer and separately preparing a catalyst solution comprising a metathesis polymerization catalyst, and adding a flame retardant in the monomer solution and/or the catalyst solution – a processing sequence which differs significantly from any taught in the Arai reference.

For the reasons given above, withdrawal of the rejections of claims 1, 2, 4, 5, and 9 – and allowance of claims 1, 2, 4, 5, and 9-12 along with already allowable claims 7 and 8 – is earnestly solicited.

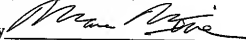
Contact information

If there are any questions concerning this application, the Examiner is invited to contact Richard Gallagher (Registration No. 28,781) at (703) 205-8008.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

Dated: SEP 2 2008

Respectfully submitted,

By 

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